

September 2011 AZ, NM and Davis Mts Wild Potato Collecting Trip Report

September 22-29, 2011

Executive Summary

Participants: John Bamberg (JB) and Alfonso del Rio (AdR), Ingrid Bamberg (IB)

Concept: Reasons this itinerary was high priority: Recent AFLP data (Bamberg and del Rio 2011) implicated area around Riggs Lake in Pinaleno Mts as being rich in *S. fendleri* diversity (Pinalenos were focus of 2008 collecting expedition—see that collecting report for details). No previous collections of *S. jamesii* in highlands from Safford, AZ toward Silver City, NM were previously available. *S. jamesii* 564048 [SBV17- 1992] from this general area was also previously identified as quite distinctive. Finally, we were able to schedule access to the Davis Mts of west TX (owned by The Nature Conservancy) this year, where potatoes had never been previously collected.

Preparations: Funding by USDA/ARS/PEO (Appendix). Monitor regional rainfall through spring and summer. Permit from USFS office in Safford (see Appendix). Garmin GPSs borrowed from Karen Williams, USDA/ARS/PEO, Beltsville and uploaded tracks and notes from Topo 7 and GoogleEarth tracks. Flights to El Paso from Milwaukee and vehicle rental. Conditioning hiking. Expected to depend on internet maps through Verizon receiver plug-in to laptop, but failed to appreciate that there would generally be no reception away from cities.

Results: AZ and NM sites accessed primarily by drive-up and short hikes. About 15 miles of hiking in Davis Mts, primarily to the peak of Mt. Livermore, Tobe spring canyon, and Cat Tank trails. Collected 28 samples: 7 re-collections, 7 collections from sites close to previous collections, 14 new sites. Of particular import are the 4 new collections (#10 - #13) from sites near the AZ/NM border from which no potatoes had been previously reported, and the 7 *fendleri* and 1 *jamesii* collection from previously inaccessible TNC Madera Canyon / Davis Mts. Herbarium specimens will be made from regenerants for PTIS and ARIZ. Although this expedition was particularly late in the season, the plants observed were perhaps the most robust observed over 20 years of collecting. Very many large green plants, flowering and heavily fruiting, and sometimes with mature tubers were encountered. Many fruit were collectable, but the actual seed capture was limited by the common infestation of fruitfly grubs.

Deposit of records, materials and files: US Potato Genebank, 4312 Hwy 42, Sturgeon Bay, WI, 54235. 920-743-5406. john.bamberg@ars.usda.gov. All secure in genebank as PI 663997-664024 as of November, 2011. Query GRIN text “BdRB”. Herbspecs to PTIS, ARIZ.

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41
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Summary list of collections

Coll #	type ¹	Site nickname
1	R	Snow Flat
2	N	Peters Flat
3	C	Riggs Lake
4	R	Riggs Lake
5	C	Clark Peak trailhead
6	C	Clark Peak trailhead
7	C	Clark Peak trailhead
8	N	Jesus Goudy campground
9	R	Moonshine Creek
10	N	Big Pipe Fence
11	N	Coal Creek Campground
12	N	Mule Creek Post Office
13	N	Catwalk at Glenwood
14	R	SBV17 site
15	C	SBV17 site
16	R	Iron Creek Campground
17	R	Emory Pass Vista
18	C	Emory Pass Sign
19	C	Madera Canyon near picnic area
20	R	Flood Gauge
21	N	Madera Canyon Road
22	N	Madera Canyon Road
23	N	Livermore trail
24	N	Livermore trail
25	N	Livermore trail
26	N	Livermore peak
27	N	Tobe spring
28	N	Madera Canyon <i>jamesii</i>

44 ¹ R = re-collection, C = close to previous collection site, N = new collection site.

TRIP LOG

Note: Coordinates in text, when abbreviated, are the decimal minutes within WGS84 degrees implied from site description. See TNC Davis Mt map for road numbers. See Appendix text narrative for full collection details.

Wednesday, September 21st

JB and IB leave 5 PM to drive to Super8 Milwaukee Airport (free parking), stopping Denmark for supper.

Thursday, September 22nd

Meet AdR (who took early morning bus from Madison) at MKE for ~8:00 AM flight to ELP, arriving noon. Clear view of Cornudas Mts as we fly over on approach to ELP. Get Jeep at ELP National, but not 4WD or high clearance. Lunch at Taco Cabana on 10 leave for Las Cruces at 1:30 and coffee break at Milegro Coffee. Reach 191 N to Safford at 5:30. Supper and Starbucks coffee at Safeway. Lodge at Best Western.

Friday, September 23th

Up 7:00, decide to reserve additional night at Best Western, breakfast at El Coronado. Back to Safeway for lunch supplies. Depart 8:45 up Swift Trail. Mile marker 127 at 9:30 found a few fen where observed in previous years. Past Turkey Flat also observe a few plants with fruit. At 10:05 pass 8,000 ft elevation sign. To Snow Flat at 10:20 to re-collect 655259 [2008].

Collection #1 – Snow Flat

At 10:35 reach end of pavement at Shannon campground. Proceed to Peters Flat campsite arriving at 11:10.

Collection #2 – Peters Flat

Arrive Riggs Lake 11:35. To parking lot on N side of Riggs Lake to search all around the lake. Saw about 10 very small plants at 42.320 x 58.027 but uncollectable. Search all along cliff SW of lake. Below Riggs Lake dam looked good.

Collection #3 – Riggs Lake

Collection #4 – Riggs Lake

To Clark Peak trailhead 2:00 PM (32° 43.046 x 109° 58.628) to search and sample more extensively at this area shown to be rich in diversity (Bamberg and del Rio 2011).

Collection #5 – Clark Peak trailhead

Collection #6 – Clark Peak trailhead

Collection #7 – Clark Peak trailhead

91
92 Depart 2:30 back down Swift Trail 366 to near entrance to Jesus Goudy campground where IB sees
93 plants in ditch from vehicle at this new site.
94

95 **Collection #8 – Jesus Goudy campground**

96

97 Late lunch at campground at 3:10, cook coffee over fire. Started exploring more around camp area at
98 3:50, looked very good among big rocks, depart 4:20. At 4:35 at FR 4522, moist dark soil, very green
99 with herbs and grass. Looked very good at 42.768 x 56.830. To Moonshine Creek, arriving at 5:00 PM
100 to re-collect 655253 [2008].
101

102 **Collection #9 – Moonshine Creek**

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104 Depart 5:22 for Safford, at 6:00 stop 15 minutes to let brakes cool and IB recover from dizzying slalom
105 down 366. Salsa Fest in Safford served as supper. Retire at Best Western at 7:30.
106

107 **Saturday, September 24th**

108

109 Breakfast at Best Western, Safeway coffee and buy lunch stocks, gas up to depart Safford 8:00. E on
110 191 to 78. Rabbit brush along road, which suggested jam at Grand Canyon S Rim in 2003, but much too
111 low here. At 9:10, stop at 33° 03.016 x 109° 05.830 and 5916 ft. at roadside pulloff. S-facing rocky
112 gulley. Very dry. Mark 007. Roadside pulloff at 03.346 x 04.908 where habitat looked possible. Mark
113 008 at 9:45 at Black Jack campground. Looked good. Make phone call to past collecting partner Chico
114 Fernandez to ask him if we should stay at his favorite place in Silver City tonight—The Drifter. At
115 10:10, Mark 009 at big streambed. Looked very good, with assorted related Solana. Mark 010 at place
116 we nickname “Big Pipe Fence” because of very large corral made of welded 4” steel pipe that looked
117 appropriate for holding elephants.
118

119 **Collection # 10 – Big Pipe Fence**

120

121 At 11:08 proceed NE to cross NM border, but then retrace to Coal Creek campground, about ½ mile
122 from collection #10 for exploration and 11:20-12:30 lunch at Mark 011.
123

124 **Collection #11 – Coal Creek campground**

125

126 Cross NM border and at 12:45 at Dos Ciengas Ranch entrance at 07.355 x 59.317 where wash supports
127 big cottonwoods and willows. Seemed too dry. Proceed E on 78 to arrive at Mule Creek Post Office at
128 1:00.
129

130 **Collection #12 – Mule Creek Post Office**

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132 At 1:30 proceed E to 180 jct and N toward Mogollon intending to go up to see previous fen sites, but
133 turned back by highway department crew warning of jackknifed semi on mountain road above. Back S
134 to Glenwood for coffee at goat soap & lotion product store. At 3:00 trying to get along river at
135 Glenwood. Local recommended access at San Francisco hot spring a few miles S of Glenwood. JB and
136 AdR start 3:20 hiking fast to hot spring for ½ hour, but habitat did not look good at all. Returned to 180

and N toward Glenwood and W at Sundial Spring Road. This has small parking area and San Francisco river bottom access (turnoff at 15.395 x 52.285 and river bottom at 14.903 x 52.721 and 4560 ft). Looked very good among willows in sandy shoreline, but this is too low. Back N to Glenwood take 174 E at intersection with 180 at 19.242 x 52.973 and to Catwalk road for 5 miles paved NE to Catwalk / Whitewater recreation area park, arriving 4:45. Very green. This is only about 3 miles as crow flies SW of Mogollon ghost town.

Collection #13 – Catwalk at Glenwood

JB and IB hike up catwalk along side of narrow canyon, and on way down meet 85-year old retired firefighter and hiker, hard of hearing, asking for “Joe” and looking for two kids he suspected were lost, as reported to him by their Brazilian dad down at the campsite. Was the dad’s name, by any chance, “Alfonso”? Yes. Record leaving at 6:25 for Glenwood, but realize it was really 7:25 in new time zone. Looked for lodging in town, but establishments were already closed. Instead, had beef brisket supper at cowboy bar “Blue Front” with local band and dancing. At 9:00 leave for 1.5 hr drive to Silver City to lodge at “The Drifter” motel.

Sunday, September 25th

Up 7:00 AM for coffee in old downtown at the Javalina Coffee Shop then few blocks to Vicky’s for breakfast. Albertson’s grocery on E side for supplies. At 9:00 back N up 180 to Mangas Valley. At 9:25 reach Bill Evans Lake road (52.865 x 35.279) – probably too low at 4500 ft, but W-facing sides of access road looked very good. At 10:00 looked along sandy San Francisco river banks near bridge (54.029 x 35.762 and 4429 ft) on road to Bill Evans Lake. At 10:15 back to 180 S to N on 153 through Gila toward mountains to get more elevation but pavement ended < 5000 ft. at 43.300 x 25.861. Take shortcut on Mangas Valley Road from 180 to 90 S past Tyrone Mine looking all along road. But did not look good—mostly too dry and gravelly, e.g., at 11:00 at 39.449 x 21.096 and 5970 ft. Proceed to 90 S toward Lordsburg mile marker #17 to site of SBV 17 [1992], the very unusual previously-collected *S. jamesii*.

Collection #14 – SBV17 site

Collection #15 – SBV17 site

Return N on 90 toward Silver City, stopping at a few other promising-looking sites, including at Continental Divide. At 1:40 looked along river in Silver City, and especially at Mill Street access under highway 90 bridge around 32° 45.915 x 108° 16.507 and 5850 ft. Looked good. Back to old downtown and coffee shop for espresso. Late lunch at Taco Bell on E side at 2:30 and gas up, buy NM map, and proceed E on 180 to Ft. Bayard cemetery to check site of 620872. Very dry, but was similarly harsh at this site at original collection in 2001. Take 152 across mountains past Galinas Campground at 54.004 x 49.385 and 7000 ft. (looked very green). Light rain. Arrive at Iron Creek at 4:00, Mark 018, for recollection of 592409 [1995] fen. Saw a few small, yellow jam just as previously 592410 [1995].

Collection #16 – Iron Creek Campground

Proceed to Emory Pass Vista parking lot, 8100 ft, for re-collection of 595776 [1996].

183 **Collection #17 – Emory Pass Vista**

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185 Back to 152 at Emory Pass per se. At 4:50 PM, just below pass sign.

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187 **Collection #18 – Emory Pass**

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189 Continue E on 152 to Interstate 25 and S to Las Cruces to 6:30 supper at Andele's Mexican. Drive to El
190 Paso exit 25 for gas and Microtel at airport. JB gets cardboard box from dumpster and packs plants
191 collected so far in standard plastic quart freezer boxes so IB can carry them home Monday morning.

192
193 **Monday, September 26th**

194
195 Check out at 8:00 after breakfast at Microtel, but reserve for Wednesday night. See IB off on flight to
196 MKE via Houston (carrying plants). Later learned that IB raised considerable suspicion in security
197 personnel with her boxed plants, especially wondering about one box extra heavy (more water). Flight
198 crew took box into closet on boarding, although it would have fit easily under seat (at least 10.5 inch
199 clearance). AdR negotiates with National for better vehicle. Got a 4x4 Durango, but looking it over
200 concluded it is no higher clearance than previous Jeep. Woman at desk said that was the best they could
201 do. Asked young chap checking us out if they didn't have anything more in the way of a rough road
202 vehicle. Said they had a pickup in the back lot. He brought it out. Super high clearance Ford F150 4x4
203 crew cab with double low gear and high profile tires for only \$10 more per day. Gave that guy \$20 for
204 "saving the day". Down 10 to Van Horn by 10:00AM but now 11:00 Central, eat brunch at truckstop.
205 Would some higher peaks in this area have *jamesii* like Franklin Mts site at El Paso or reputed Cornudas
206 Mts? When radio towers are present, it suggests there is a road. Intending to take 118 S, but needed to
207 drive to gas station 4 miles beyond intersection to buy backup batteries for GPS and snacks. Has been
208 poor phone and internet reception all during this trip, but here able to call home. Down 118. At 1:00
209 PM stop at culvert at 30° 43.027 x 104° 07.872 and 5925, where it looked green from road, but in fact
210 was quite dry. To Madera Canyon roadside picnic loop where previous collections of fen and jam were
211 known. Dry. No sign of fen at fenceline as previously observed, nor jam in ditch on opposite side of
212 road. Hike into The Nature Conservancy (TNC) land near picnic loop and to base of cliff at far side of
213 riverbed.

214
215 **Collection #19 – Madera near picnic loop**

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217 Toward Ft. Davis for 2.4 miles on 118 to previous collection 595779 [1996] at flood gauge. This is site
218 of remarkable fen plant growing in crotch of tree, first observed in 1996 and again five years later in
219 2001 (Bamberg et al. 2003).

220
221 **Collection #20 – Flood Gauge**

222
223 Back N on 118 see much dead and burned pines on hillsides. To TNC driveway and sign-in kiosk about
224 ½ mile W of picnic loop. Visitor Center closed for remodeling, but met by TNC staffer to whom we
225 told our business. He said we would encounter some locked gates. Proceed Madera Canyon road #4 to
226 stop to look at 40.371 x 08.414 and 6100 ft. At 40.120 x 08.819 and 6150, Mark 022, where there was
227 some moisture in watercourse. At 3:30, Mark 023, NW-facing rock cliff.

Collection #21 – Madera Canyon

At 4:10, at gate at jct of trails 12, 14, 15 and 6365 ft. At 4:40 at Shoe to Pine road jct (#8) and 6200 ft. At 4:50 at Jones Tank loop and 6300 ft. At 5:00, along E-facing cliff right next to road, Mark 024.

Collection #22 – Madera Canyon

At 5:40 leave for Ft. Davis. Stay at “Stone Village Tourist Camp” where lodgers get free coffee at the upscale grocery store next door. Clerk there told us there had been a widespread fire here in spring, and that, although W Texas was very dry, it was the wettest place in TX this year. Supper at “The Drugstore”. Scope likely collection sites in Madera Canyon with GoogleEarth on laptop. GoogleEarth shows shadows that identify steep NE-facing cliffs in canyon where there would be shade, moisture, and rock talus to protect potato plants from grazing.

Tuesday, September 27th

Nel’s coffee before sunup and breakfast at “The Drugstore” restaurant. Call Max Martin at USPG to confirm herbspec records in Madera Canyon. When on site, it is clear that all specific descriptions are for vicinity of Livermore peak and Tobe Spring, in fact, less than a mile apart as the crow flies, except for Warnock’s 17366 [1959], Elbow Canyon (30° 41.259 x 104° 4.579 at 118), which is less than one mile from Collection #20 -- Flood Gauge. Stop at hardware store for 20 more collecting bags (the free paper bags provided for nuts and bolts purchases), where clerk refused any payment (we told her we would remember her in our prayers for her kindness). Buy groceries for lunch. Leave Ft. Davis at 9:00, sign in at TNC kiosk at 9:40. Drive 5 miles to trailhead and start hike to Livermore peak at 10:40 on unbelievably steep road. At 11:15, Mark 025,

Collection #23 – Livermore trail #1

At Mark 026,

Collection #24 – Livermore trail #2

Reach trails jct saddle at 12:10. At 12:40 see a few more plants at gap where McDonald Observatory can be seen at 60°. At 12:45 at E-facing switchbacks,

Collection #25 – Livermore trail #3

At 1:30 reach end of road at base of Livermore.

Collection #26 – Livermore peak base

Lunch until 2:00, then try ascent to peak per se, but became steep rock climbing, so return, arriving back at truck at 3:50. On drive-out to 118 looked at bases of three cliff faces suggested by shadows in GoogleEarth, all about 6000 ft: 40.343 x 08.448, 41.032 x 07.769, and 41.601 x 07.462. Depart TNC about 5:00. Stopped to look at standing rocks picnic site along road to Ft. Davis. But only about 4900 ft and very dry. At about 10 miles before Ft. Davis noted mountain to SW with N-facing canyon (this is

Blue Mountain at 30° 33.91 x 104° 1.409, with road to 7300 ft peak and two steep N-facing canyons at 6600) rather parallel to Livermore aspect and drainage, except without such a high crowning peak. Potential for exploration during a future trip to area. At 6:00 PM “Drugstore” supper and repeat lodging at “Stone Village Tourist Camp”.

Wednesday, September 28th

Breakfast at market next door to, and owned by motel. Arrive TNC 8:40. To multiple trailheads by 9:20. Mistakenly go down #15 Cat Tank trail to W. Too low and dry. Arrive back to truck at 10:30 for snack and leave for Tobe road at 10:45. At 6700 see first light green plants along trail. At 11:25 reach Tobe Canyon trailhead. At 11:35 and 6900 see a few more plants and collect fruit. Water break at 11:45. Reach Tobe Spring at noon. Hardly any water in spring.

Collection #27 – Tobe Spring

Depart at 12:30, reaching truck at 1:15 as starting to rain. Lunch until 2:00 in truck. Look at rocky cliffs near roads/trails jct at locked gate jct, Mark 027. Only a few small plants seen. At 2:50 and 3:20 collect a few small plants at sites of Collection #21, and #22 respectively, in case seeds previously collected are destroyed by fruitfly grubs. Light, intermittent rain. Return to TNC headquarters and cross field to high N-facing cliffs along Madera Canyon.

Collection #28 – Madera Canyon *jamesii*

Return to Ft. Davis to take more high resolution pictures (camera was set at low resolution when there previously). Coffee and food at market. S to Marfa, arriving 6:00 and Dairy Queen treat, then to 90 N back to Van Horn truckstop for coffee arriving 7:00 and W on 10 to El Paso airport Microtel, arriving 8:30. First gas-up of truck, but for about \$100.

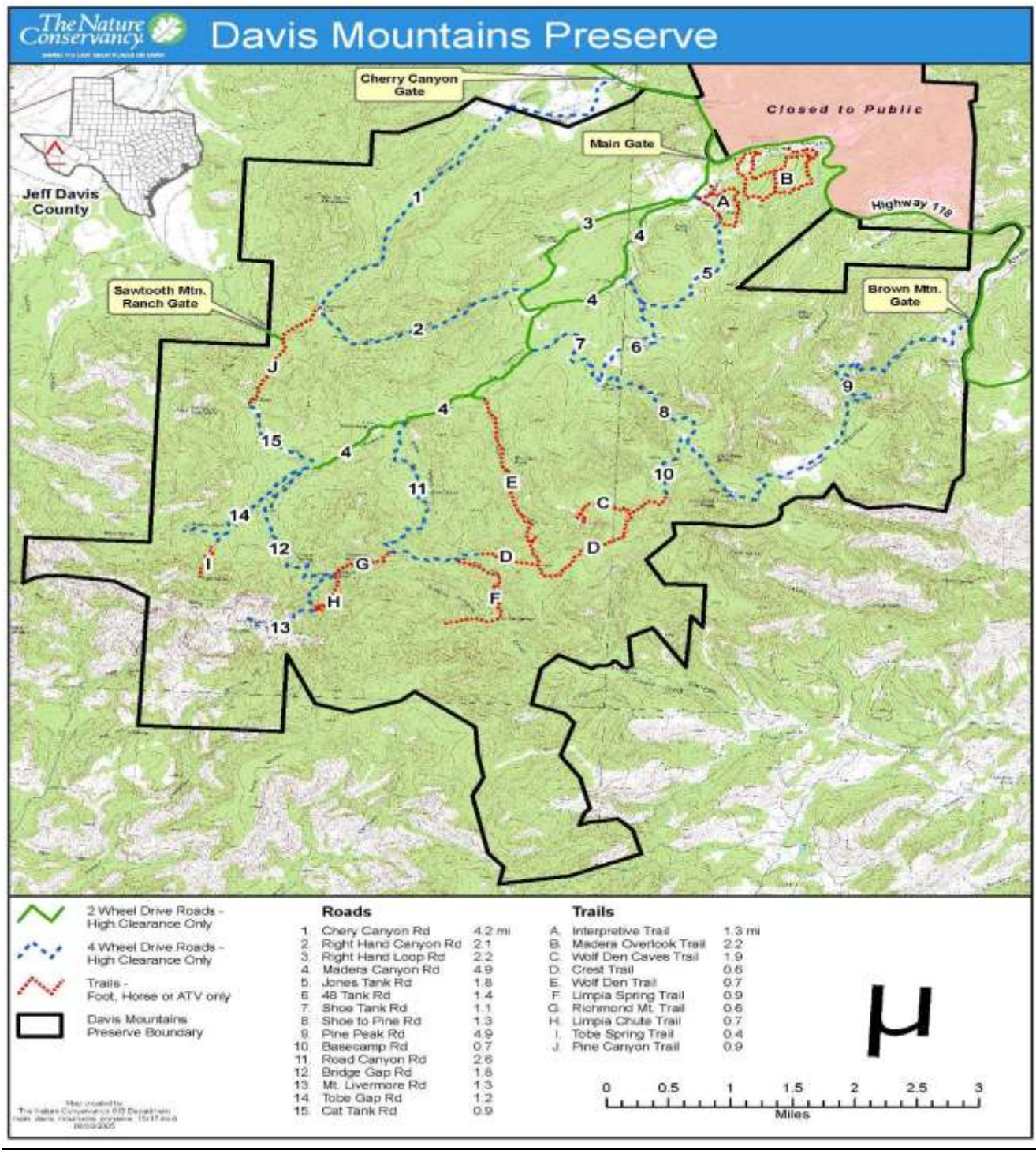
Thursday, September 29th

Up 6:30, look in numerous dumpsters for cardboard box, but most had just been emptied (by same refuse company). Finally find “What-a-Burger” ketchup box at fast food restaurant dumpster. Return truck and have airport Starbucks. Bad storm in Houston delays takeoff by two hours, and rough landing at MKE with heavy rain and high winds. Baggage missing, and needed to be recovered from locked storage (inexplicably arrived at MKE on earlier flight). Leave MKE after 9:00, AdR takes bus to Madison, JB and IB driving toward home in high winds and rain up to Mequon, decide to lodge for night there at “Chalet Motel”.

After: As usual, Charles (Chico) Fernandez takes charge of transplanting plants in greenhouse at USPG, extracting seeds from fruit, bagging tubers and making notes and inventory. Return GPSs to Karen Williams at PEO, Beltsville.

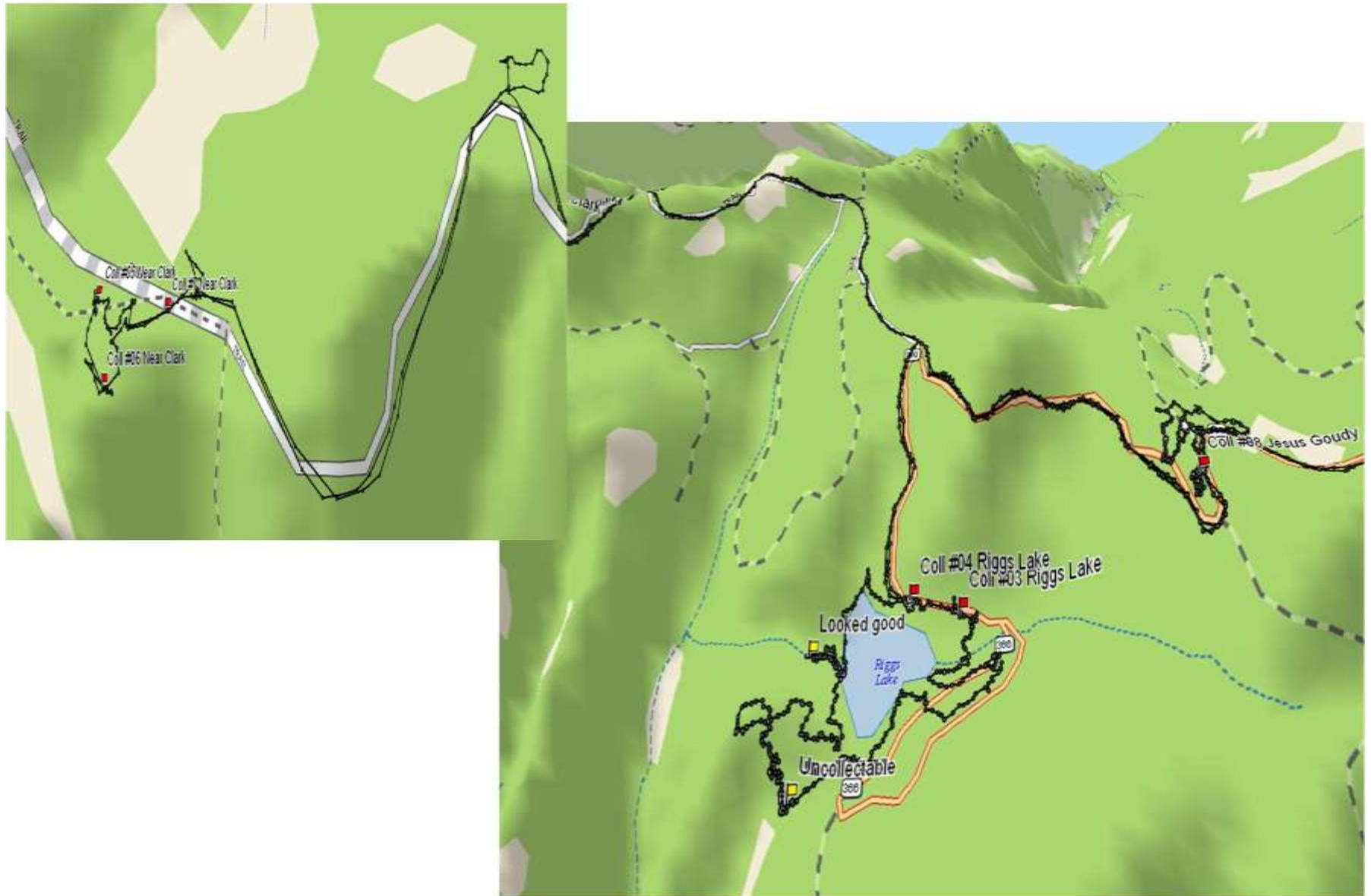
APPENDIX

Maps



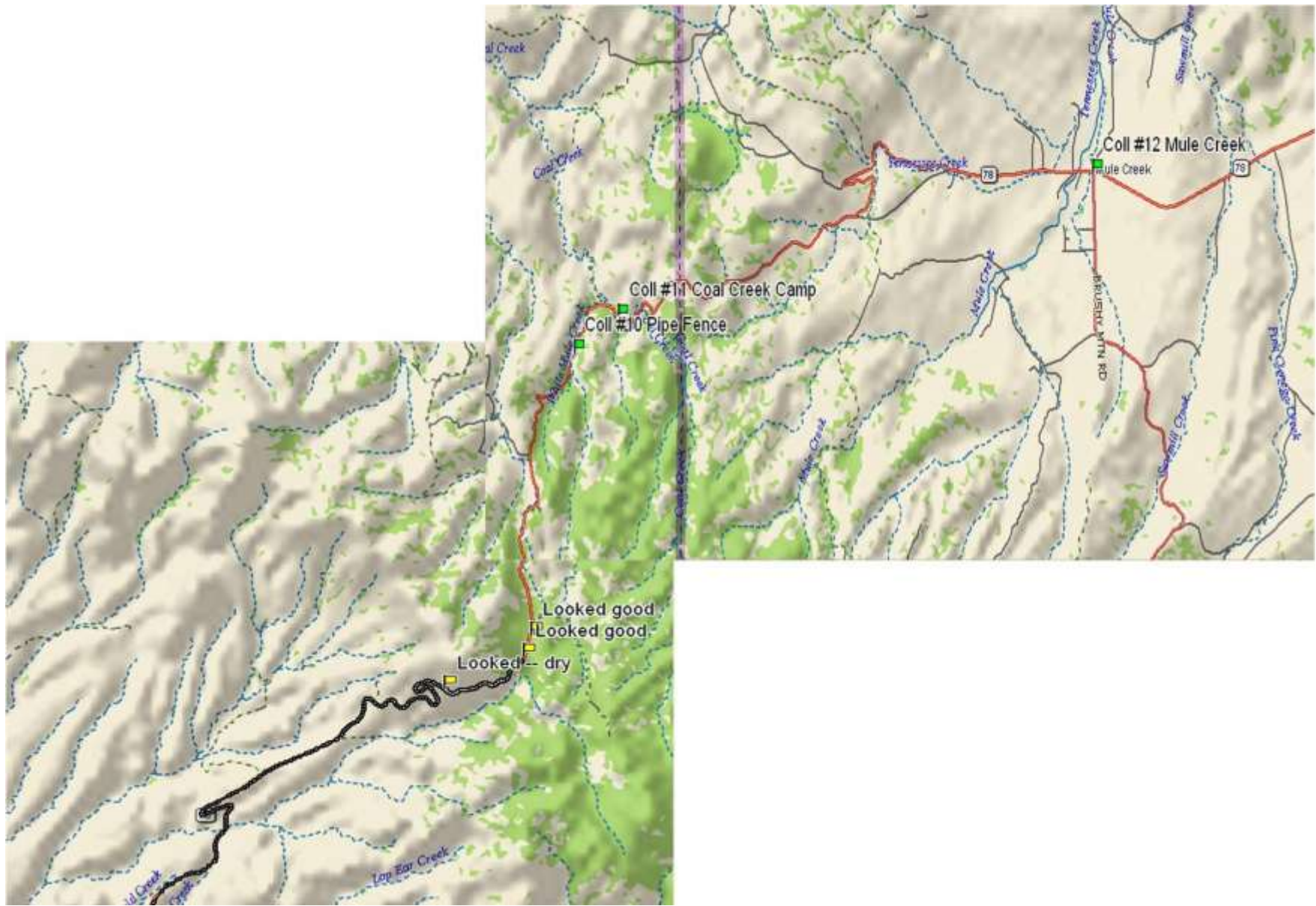
324 **Collections near Riggs Lake in Pinaleno Mts.**

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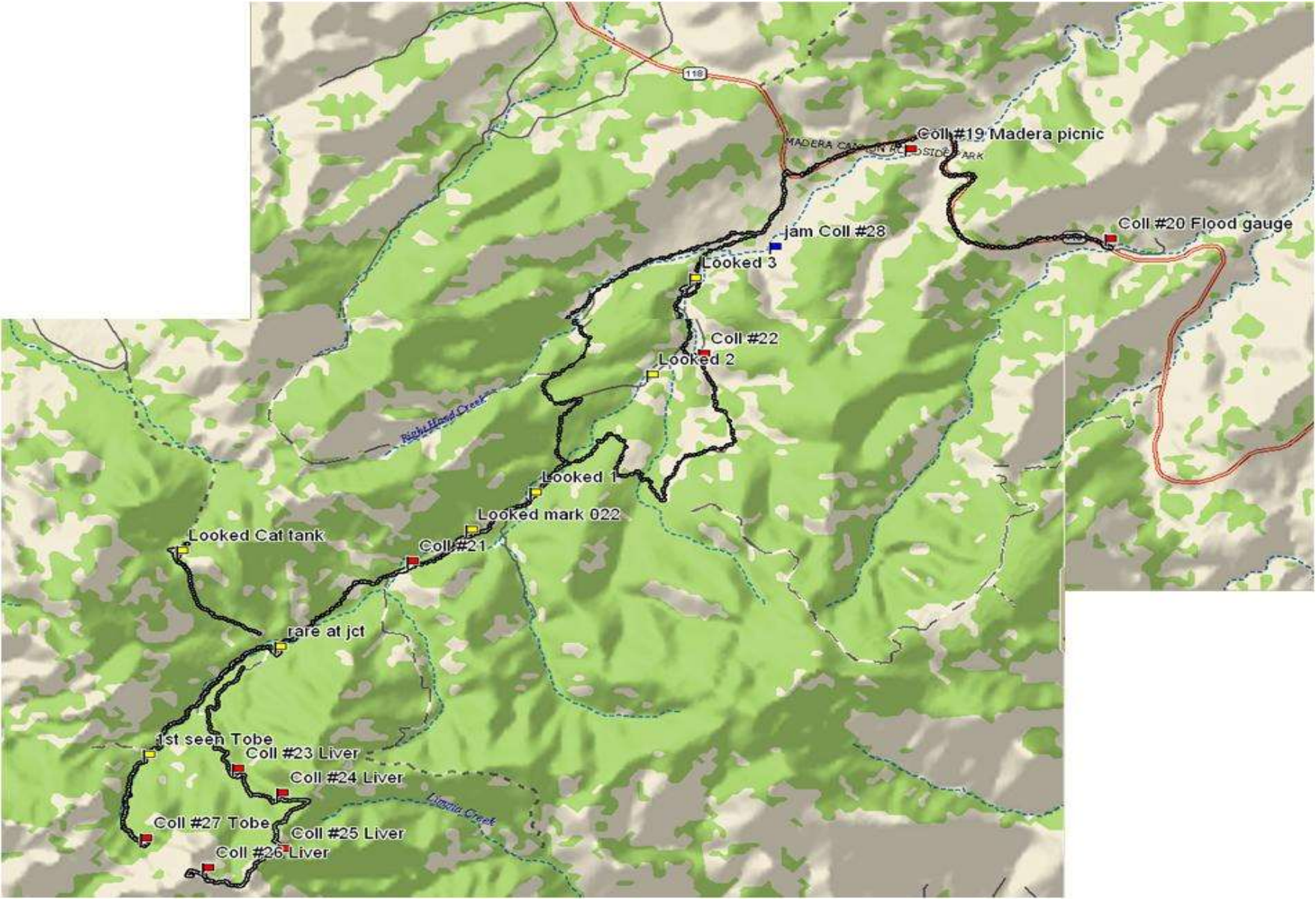
327 **New Collections near AZ – NM border**
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331 TNC Davis Mountains collections

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334 **COLLECTIONS LIST** (as numbered in text)

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336 **September 2011 AZ, NM and Davis Mts, TX potato collecting¹**
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663997. fen. BdRB 223. Arizona. Pinaleno Mountains. Coll #01. Sept , 23. 2011. Up 366 from Safford to Snow Flat dirt road, then 3/4 mile to Snow Flat. Coming into the flats along left side of roadway. Large green plants, some yellow, abundant mature fruit. Grassy roadside under trees. 32 39.268548 x 109 51.857779. 8830ft. Collected 326 seeds.
663998. fen. BdRB 224. Arizona. Pinaleno Mountains. Coll #02. Sept , 23. 2011. Up 366 from Safford to Peters Flat. About 50 yards SW of fire box at campsite which is on SW side of road. Hundreds of yellow plants 1-3 inches tall. A few tiny but mature fruit. Hidden in branches of large fallen tries and bark. 32 42.228999 x 109 55.906999. 9440ft. Collected 46 seeds.
663999. fen. BdRB 225. Arizona. Pinaleno Mountains. Coll #03. Sept , 23. 2011. Up 366 from Safford to Riggs Lake, then E from parking lot 400-800 ft along S side of road. Occasional large green plants with fruit. Grassy roadside under trees. 32 42.512999 x 109 57.783. 8775ft. Collected 130 seeds.
664000. fen. BdRB 226. Arizona. Pinaleno Mountains. Coll #04. Sept , 23. 2011. Up 366 from Safford to Riggs Lake Parking lot, immediately on E edge. Many large green plants with fruit. Grassy roadside under trees. 32 42.52985 x 109 57.862101. 8770ft. Collected 205 seeds.
664001. fen. BdRB 227. Arizona. Pinaleno Mountains. Coll #05. Sept , 23. 2011. Up 366 from Safford to Riggs Lake road intersection, then continue W about 1.2 miles. At 200-500 ft from trailhead to Clark Peak. Many large and small plants with fruit, sometime already dropped. Pine needles and grass under large pines or among rocks. 32 43.047101 x 109 58.712003. 9000ft. Collected 346 seeds.
664002. fen. BdRB 228. Arizona. Pinaleno Mountains. Coll #06. Sept , 23. 2011. Up 366 from Safford to Riggs Lake road intersection, then continue W about 1.2 miles. At 200-500 ft from trailhead to Clark Peak Many small plants in an area only about 10 ft in diameter, with a few small fruit. Pine needles and grass under large pines or among rocks. 32 43.021002 x 109 58.702998. 9000ft. Collected 185 seeds.

664003. fen. BdRB 229. Arizona. Pinaleno Mountains. Coll #07. Sept , 23. 2011. Up 366 from Safford to Riggs Lake road intersection, then continue W about 1.2 miles. At 200-500 ft from trailhead to Clark Peak Many large and small plants with fruit, sometime already dropped. Pine needles and grass under large pines or among rocks. 32 43.043203 x 109 58.664002. 9000ft. Collected 692 seeds.
664004. fen. BdRB 230. Arizona. Pinaleno Mountains. Coll #08. Sept , 23. 2011. Up 366 from Safford to Jesus Goudy campground. On W roadside about 200 ft S entrance. Eight inch yellow plants along road with small green plants with a few fruit in ditch. Roadside herbs under pines. 32 42.590997 x 109 57.416997. 9150ft. Collected 300 seeds.
664005. fen. BdRB 231. Arizona. Pinaleno Mountains. Coll #09. Sept , 23. 2011. Up 366 from Safford to Moonshine Creek. SW of main road hairpin between camp driveway and creek. Very many large green plants with berries. Grassy moist dark soil under shade of large firs. 32 41.177001 x 109 53.691001. 8960ft. Collected 1288 seeds.
664006. jam. BdRB 232. Arizona. Big Lue Mountains. Coll #10. Sept , 24. 2011. E from Safford on 70, 191, 78 to within 2 miles as crow flies from NM border. Rt 78 roadside pulloff. W-facing steep bank of White Mule creek. Where big pipe fence makes a corner. Many large green plants with fruit. Very gravelly, but moist, Junipers and Gambels, with many herbs, morning-glory, Solana, in full sun, thick and dark leaves. Saw 3-4 Colorado Potato Beetle relatives on the plants. 33 5.833511 x 109 4.208529. 5710ft. Collected 37 seeds and 8 plants.
664007. jam. BdRB 233. Arizona. Big Lue Mountains. Coll #11. Sept , 24. 2011. E from Safford on 70, 191, 78 to within 2 miles as crow flies from NM border. Right in Coal Creek campground picnic table area and across road S through trees to Coal Creek. Occasional small yellow to large and green. In grass and under trees. 33 6.118698 x 109 3.634694. 5670ft. Collected 40 seeds.
664008. jam. BdRB 234. New Mexico. Coll #12. Sept , 24. 2011. On 78 within 5 miles of AZ border. About 100 ft W of Mule Creek post office in W ditch of Brushy Mountain Road. A few spindly green plants without fruit, but with mature tubers. In green grass in moist black soil under elms and entwined with morning glory and herbs, buffalo gourd. 33 7.317002 x 108 57.390997. 5230ft. Collected 27 tubers.
664009. jam. BdRB 235. New Mexico. Mogollon Mountains. Coll #13. Sept , 24. 2011. From Glenwood on 180, 5 miles NE up 174 Catwalk road to parking lot and picnic area. Then up canyon on E side of Whitewater creek. Many large green plants with fruit. In leaf mulch over dark moist soil on steep N-facing slope in slot canyon near creekbed, under cottonwoods. 33 22.418797 x 108 50.403228. 5220ft. Collected 620 seeds.

664010. jam. BdRB 236. New Mexico. Coll #14. Sept , 25. 2011. Mile 17 marker between Silver City and Lordsburg on 90. E side ditch straight across from mile marker sign. About 20 plants, very green, flowering and fruiting with immature tubers. In open pure sand under large junipers. 32 29.786632 x 108 28.42648. 6050ft. Collected 6 plants.
664011. jam. BdRB 237. New Mexico. Coll #15. Sept , 25. 2011. About 350 ft NE of BdRB 237 near where the culvert crosses under Rt 90. About 12 small plants to 3 inches tall, very dark green and healthy looking, perfect for transplants. In open pure sand under large junipers. 32 29.816015 x 108 28.365283. 6050ft. Collected 9 plants.
664012. fen. BdRB 238. New Mexico. Black Range. Coll #16. Sept , 25. 2011. From Silver City E on 180 and 152 to Iron Creek campground. Exactly same site as PI 592409 and very near road just W of campground entrance. Extremely large dark green plants with broad thick leaves and many large berries. Moist black soil in shady creek banks under trees and hidden among herbs and grass among fallen logs and branches. 32 54.578025 x 107 48.247004. 7200ft. Collected 1153 seeds.
664013. fen. BdRB 239. New Mexico. Black Range. Coll #17. Sept , 25. 2011. From Silver City E on 180 and 152 to Emory Pass. At top of pass, take driveway to lookout parking lot, then 200 ft W down path. Exactly same site as 595776 [1996]. Large green plants with berries, some flowering, some with mature fruit. In mulch over moist black soil under trees on steep E-facing slopes. 32 54.656761 x 107 45.943422. 8220ft. Collected 165 seeds.
664014. fen. BdRB 240. New Mexico. Black Range. Coll #18. Sept , 25. 2011. From Silver City E on 180 and 152 to Emory Pass. At crest of pass on 152, just off roadway below sign. Many huge dark green flowering and fruiting plants. In open gravel of steep S-facing slope, hiding under fallen branches and among rocks. 32 54.60381 x 107 45.982196. 8180ft. Collected 192 seeds.
664015. fen. BdRB 241. Texas. Davis Mountains. Coll #19. Sept , 26. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5.5 miles S of 118-166 split. From walking trail entrance, about 400 ft SSE to N-facing far side of creek bank. A few tall green plants hiding in rocks, with only one small fruit. Among rocks of N-facing cliff of Madera Canyon, surrounding open areas very dry. 30 42.351758 x 104 6.197333. 5860ft. Collected 6 seeds.
664016. fen. BdRB 242. Texas. Davis Mountains. Coll #20. Sept , 26. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 7.5 miles S of 118-166 split where creek crosses road. About 12 large green plants with a few fruit. Among rocks and grass just off S side of 118. 30 41.809351 x 104 5.035114. 5840ft. Collected 403 seeds.

664017. fen. BdRB 243. Texas. Davis Mountains. Coll #21. Sept , 26. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 4 miles. Many large very green plants, some flowering and some with many berries, but mostly with fruitfly oviposit scars. In rocks and in open among charcoal remnants of burn at steep NW-facing cliff base. 30 39.942155 x 104 9.169872. 6220ft. Collected 70 seeds and 4 plants.
664018. fen. BdRB 244. Texas. Davis Mountains. Coll #22. Sept , 26. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 2 miles. Many large very green plants, some flowering and some with many berries, but mostly with fruit fly oviposit scars. In rocks and in open among charcoal remnants of burn at steep SW-facing cliff base. 30 41.153991 x 104 7.470574. 5990ft. Collected 557 seeds and 11 plants.
664019. fen. BdRB 245. Texas. Davis Mountains. Coll #23. Sept , 27. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 5.5 miles to Bridge Gap / Livermore peak road, then up to peak. Many large very green plants, some flowering and some with many berries, but mostly with fruit fly oviposit scars. On NE-facing bank right along roadway. 30 38.719676 x 104 10.191793. 6900ft. Collected 403 seeds.
664020. fen. BdRB 246. Texas. Davis Mountains. Coll #24. Sept , 27. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 5.5 miles to Bridge Gap / Livermore peak road, then up to peak. Many large very green plants, some flowering and some with many berries, but mostly with fruit fly oviposit scars. On N-facing bank right along roadway. 30 38.575737 x 104 9.935446. 7130ft. Collected 2961 seeds.
664021. fen. BdRB 247. Texas. Davis Mountains. Coll #25. Sept , 27. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 5.5 miles to Bridge Gap / Livermore peak road, then up to peak. Many large very green plants, some flowering and some with very many berries, some without fruit fly oviposit scars. On E-facing bank right along roadway. 30 38.248672 x 104 9.928215. 7900ft. Collected 1865 seeds.
664022. fen. BdRB 248. Texas. Davis Mountains. Coll #26. Sept , 27. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 5.5 miles to Bridge Gap / Livermore peak road, then up to peak. Many very large very green plants, some flowering and some with very many berries, mostly without fruit fly oviposit scars. In N-facing steep rock slope under Livermore Peak, in open and partial shade. 30 38.138194 x 104 10.371537. 8250ft. Collected 1788 seeds.
664023. fen. BdRB 249. Texas. Davis Mountains. Coll #27. Sept , 28. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, SW down Madera Canyon dirt road about 5.5 miles to Bridge Gap / Tobe Gap roads, then up Tobe to Tobe Spring trail to Tobe Spring. Many large very green plants, some flowering and some with many berries, but mostly with fruit fly oviposit scars. In N-facing steep canyon under forest shade in thick mulch over moist black soil. 30 38.313432 x 104 10.725396. 7380ft. Collected 1788 seeds.

664024. jam. BdRB 250. Texas. Davis Mountains. **Coll #28.** Sept , 28. 2011. About 10 miles W of split of 10 and 20, take 118 S to about 5 miles S of 118-166 split to The Nature Conservancy preserve driveway, down Madera Canyon dirt road about 0.5 miles to jct of Right Hand Loop road, and walking about 800 ft SE to canyon. Due S of windmill and very near fence. Many plants with large berries, most small and yellow and very pinnate. But only in one small, 25-ft diameter patch. Among grasses in flat pasture under scrub trees. 30 41.779883 x 104 6.993041. 5930ft. Collected 920 seeds.

¹ *Solanum* species abbreviations fen = *fendleri* now officially *stoloniferum*, jam = *jamesii*. BdRB = Bamberg, JB, AH del Rio, and Ingrid Bamberg. Unparasitized fruit had 50-100 seeds but fruit fly grubs were common so many fruit discarded during trip or after returning to the genebank—thus reported propagules “collected” represents the net surviving material available for the genebank.

Trip costs

Extramural funding by Karen Williams, PEO collecting grant of \$3,500. Formal trip claims of \$1569 (AdR) + \$1473 (JB) = \$3050. Volunteered time and expenses of IB estimated at \$1000. Time invested was at least two weeks (JB) and one week (AdR) = \$7,100. Total cost ~ \$10K+.

Possibilities for future work

We greatly expanded *fendleri* collections from West Texas, and rediscovered the single *jamesii* reported in Madera Canyon. However, a major goal of finding potatoes in Big Bend National Park, the southernmost likely habitat in the USA, remains unmet despite looking there three times. Finding *jamesii* in the Cornudas Mountains on the NM border would also expand the 3 samples of *jamesii* we have from Texas. Also, see narrative above for comments about peaks seen along 10 with radio towers, and Blue Mountain near Ft. Davis.

359 **PERMITS**

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**Application for Permission to Perform Scientific Investigations and Collection on
TNC Owned and Managed Lands**

Name of Applicant: John Bamberg

Organization: US Potato Genebank, USDA/Agricultural Research Service (see <http://www.ars-grin.gov/ars6>)

Address: 4312 Highway 42, Sturgeon Bay, WI 54235

Office Phone: 920-743-5406 Cell ph. 920-559-2006 Fax 920-743-1080

E-mail Address: _____

If Additional Persons assisting with Field Collection List Name, Address, Telephone Number:

Dr. Alfonso del Rio (same address as Bamberg) Cell: 608-217-7422

Dates of Investigation: about 5 days in September, 2011 (particular days to be determined)

Title of Project (Attach Proposal/Summary): Collecting wild potato for USPG in the Davis Mts.

Project Funding Sources: USDA/ARS - USPG and Plant Exploration Office, Beltsville

Species to be collected: *Solanum xoloniferum* (previously *S. fendleri*) possibly also *S. jamesii*

Specimen Deposit Location: no original herb specs anticipated, live material to be perpetually maintained at USPG, *ex situ* herb spec copies can be provided as per TNC request; detailed collection site data will go on line.

I, the applicant, having read the regulations, relating to scientific investigations on lands owned and managed by the Texas Chapter of The Nature Conservancy agree to comply with all conditions stated therein.

Signed: _____ Date: _____

TNC Contact Person for this permit (usually preserve or project manager):

Name: Chris Pipes, Davis Mountains Project Director

Address: P.O. Box 2092
Ft. Davis, TX 79734

Office Phone: (432) 426-2390 Cell Phone: (432) 413-1554

email: cpipes@tnc.org

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Region: Southwestern
National Forest: Coronado
Ranger District: Safford

FOREST PRODUCTS FREE USE PERMIT
PERSONAL USE ONLY (Not For Resale)
(Ref. FSM 2400 and FSM 2409.18)
U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE

Permit FS-2400-B (11/2003)
OMB No. 0598-0085
Expires 01/31/2012

Permittee's Name and Complete Address:		Permit No.	Preparation Date	
Name: JOHN BAMBERG		5657	09/13/2011	
Address: 4312 Highway 42		Effective Date	Termination Date	Load Ticket Numbers
City/State: Sturgeon Bay, WI		09/13/2011	10/14/2011	Thru
Zip Code: 54235		Product Plan		
		29 D4 SWIFT TRAILWEST PEAK NON-CONVERTIBLE PRODUCTS FREE		
Permittee Identification		Permit Area Description:		
B5164625801800		Swift TrailWest Peak: Forest Bndry to end of roads, incl live MANZANITA limbs		
Type				
Drivers License				
Vehicle(s) Information				
Year:	Year:			
Make:	Make:			
Model:	Model:			
Color:	Color:			
License:	License:			
State:	State:			
Remarks: CUSTOMER CONTACTED THE OFFICE REGARDING THE COLLECTION OF POTATO/ROOT AROUND RIGGS LAKE. CUSTOMER WILL BE USING A RENTAL VEHICLE WHILE HARVESTING.				

Pinaleno Mts 2011 Permit

PRODUCT DESIGNATION					
Product	Species	Unit of Measure (UOM)	Quantity	Rate Per Products (UOM)	Total Value (Free)
Non Conv.	Softwood - Other	Lbs	200.00	\$ 0.10	\$20.00
				Total Permit Value	\$ 20.00

PRODUCT QUANTITY REMOVAL RECORD											
Date	Time	Quantity Removed	Date	Time	Quantity Removed	Date	Time	Quantity Removed	Date	Time	Quantity Removed

SIGNATURES

x John Bamber x 9.13.11 Roseli Coca 9.13.11
PERMITTEE Date FOREST OFFICER Date

Under the Paperwork Reduction Act of 1995, an agency shall not conduct or sponsor, and no persons are required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB number for this information collection is 0598-0085. Public reporting burden for this collection of information is estimated to average 5 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

GENERAL CONDITIONS
<p>Subject to, and in strict compliance with, all the following conditions (both General and Other) and those listed above, the Permittee named herein is authorized to harvest and remove the forest product described above.</p> <ol style="list-style-type: none"> 1. Forest products obtained under "Free Use" are for personal use only and cannot be sold or exchanged (36 CFR 261.6(f)). 2. Permit must be in the Permittee's possession while harvesting and transporting products. Copies are not allowed. 3. This permit is nontransferable. 4. This permit and activities hereunder are subject to all applicable Federal statutes and regulations and State and local laws. In case of conflict, Federal statutes and regulations shall take precedence. 5. Motorized vehicles are not allowed off existing roads that are open to the public, unless otherwise specified within this permit. Permittee parking shall not block traffic or impede fire or emergency vehicles. 6. Permittee shall remove all trash and litter resulting from Permittee's activities.

363 **Pictures**

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Pinaleno crest habitat



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Mule Creek Post Office ditch

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367 Mt. Livermore road

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Habitat near AZ-NM border



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Mule Creek Post Office habitat

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372 Tobe Spring trail



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Coal Creek area *jamesii*



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Tobe Creek *fendleri*



390
391 Boxed *jamesii* from slope at Big Pipe Fence
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399 Near Emory Pass sign
400



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396 flowering *jamesii* near SBV17 site
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401
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403 Catwalk near Glenwood *S. jamesii* habitat

References

- Bamberg, JB, AH del Rio, Z Huaman, S Vega, M Martin, A Salas, J Pavék, S Kiru, C Fernandez and DM Spooner. 2003. A decade of collecting and research on wild potatoes of the southwest USA. Am J Potato Res 80:159-172.
- Bamberg, JB and AH del Rio. 2011. Diversity Relationships Among Wild Potato Collections from Seven “Sky Island” Mountain Ranges in the Southwest USA. Am J Potato Res 88: In press.